

## Marguerite Mauritz

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Postdoctoral Researcher

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### Research Interests

Using field and lab CO<sub>2</sub> flux and CO<sub>2</sub> isotope methods to understand the impact of permafrost thaw on arctic carbon (C) cycle, C stabilisation mechanisms in soil, plant-microbe interactions, C priming interactions

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### Education

**PhD Joint Doctoral Program in Ecology**, 2013, San Diego State University and UC Davis

**BSc Honours, Biology (Industrial Placement)**, 2006, Durham University, UK

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### Relevant Software skills

Programming and statistics in R, Excel; Database management

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### Relevant Field and Lab experience

Carbon flux partitioning, Stable Isotopes, Automated soil respiration systems, Meteorological towers, Soil analyses, Vegetation surveys

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### Scientific Publications

Celis, G., **M. Mauritz**, R. Bracho, V. G. Salmon, E. E. Webb, J. Hutchings, S. M. Natali, C. Schädel, K. G. Crummer, and E. A. G. Schuur. 2017. Tundra is a consistent source of CO<sub>2</sub> at a site with progressive permafrost thaw during 6 years of chamber and eddy covariance measurements. *Journal of Geophysical Research: Biogeosciences* 122

**Mauritz, M.**, Bracho, R., Celis, G., Hutchings, J., Natali, S.M., Pegoraro, E., Salmon, V., Schädel, C., Webb, E., Schuur, E.A.G. 2017. Non-linear CO<sub>2</sub> flux response to seven years of experimentally induced permafrost thaw. *Global Change Biology* 2017;23:3646–3666. DOI: 10.1111/gcb.13661.

Prevéy, J., Vellend, M., Rüger, N., Hollister, R.D., Bjorkman, A.D., Myers-Smith, I.H., Elmendorf, S.C., Clark, K., Cooper, E.J., Elberling, B., Fosaa, A.M., Henry, G.H., Høye, T.T., Jónsdóttir, I.S., Klanderud, K., Lévesque, E., **Mauritz, M.**, Molau, U., Natali, S.M., Oberbauer, S.F., Panchen, Z.A., Post, E., Rumpf, S.B., Schmidy, N.M., Schuur, T., Semenchuk, P.R., Troxler, T., Welker, J.M., Rixen, C. 2017. Greater temperature sensitivity of plant phenology at colder sites: implications for convergence across northern latitudes. *Global Change Biology* 23 (7)

Salmon, V., Soucy, P., **Mauritz, M.**, Celis, G., Natali, S., Mack, M., Schuur, E.A.G.. Nitrogen availability increases in a tundra ecosystem during five years of experimental permafrost thaw. 2016. *Global Change Biology* 22 (5)

Burd, A., Frey, S., Cabre, A., Ito, T., Levine, N., Loenborg, C., Long, M., **Mauritz, M.**, Thomas, R., Stephens, B., Vanwalleghem, T., Zeng, N. 2016. Terrestrial and Marine Perspectives on Modeling Organic Matter Degradation Pathways. *Global Change Biology* 22 (1)

Natali, S., Crummer, G., Schuur, T., Johnston, C., **Mauritz, M.**, Webb, E., Salmon, V., Shade, J., Krapek, J., Pegoraro, E. 2015. Permafrost thaw and soil moisture drive CO<sub>2</sub> and CH<sub>4</sub> release from upland tundra. *Journal of Geophysical Research: Biogeosciences* 120 (3), 525-537

**Mauritz, M.**, Cleland, E., Lipson, D. 2014. The influence of altered rainfall regimes early season N partitioning among early phenology annual plants, a late phenology shrub and microbes in a semi-arid ecosystem. *Ecosystems* 17 (8), 1354-1370

**Mauritz M.**, Lipson D.A. 2013. Altered phenology and temperature sensitivity of invasive annual grasses and forbs changes autotrophic and heterotrophic respiration rates in a semi-arid shrub community. *Biogeosciences Discuss.*, 10, 6335-6375

Lipson D.A., Zona D., Raab T.K., Bozzolo F., **Mauritz M.**, Oechel W.C. 2012. Water table height and microtopography control biogeochemical cycling in an Arctic coastal tundra ecosystem. *Biogeosciences* 9:1-15

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#### **Scientific Talks (selected):**

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**Mauritz, M.**, Schuur, E., Bracho, R., Celis, G., Ledman, J.. The carbon balance of Alaskan tundra in response to long-term permafrost degradation. **XI. International Conference on Permafrost, 2016**

**Mauritz, M.**, Pegoraro, E., Natali, S.M., Salmon, V.G., Schuur, E.A.G.. Seasonal variation of ecosystem respiration delta <sup>13</sup>C in response to experimental permafrost thaw and vegetation removal in moist acidic tundra. **American Geophysical Union, Fall Meeting 2015**, B43M-05

**Mauritz, M.**, Cleland, E., Lipson, D. 2012. How does altered precipitation and annual grass invasion affect plant N uptake in a native semiarid shrub community? **American Geophysical Union, Fall Meeting 2012**, B32B-03

**Mauritz, M.** Lipson, D. 2012. Non-native annual grasses and forbs alter sensitivity of soil respiration to moisture and temperature and increase soil respiration rates in a semi-arid shrubland. **ESA Annual Meeting 2012**

**Mauritz, M.**, Eviner, V. 2012. Assessing the impact of invasive annual grasses on seed production and seed viability of two native Californian grasses. **California Native Plant Society Meeting January 2012**; Awarded 1<sup>st</sup> place student oral presentations

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#### **Academic Posters (selected)**

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**Mauritz, M.,** Celis, G., Ebert, C., Hutchings, J., Ledman, J., Natali, S.M., Pegoraro, E., Salmon, V.G., Schädel, C., Taylor, M., Schuur, E.A.G.. Tundra ecosystem respiration is dominated by recent C inputs, masking contributions from old and more decomposed substrates. **American Geophysical Union, Fall Meeting 2017, B411-20189**

**Mauritz, M.,** Bracho, R., Celis, G., Natali, SM, Hutchings, J, Salmon, VG, Webb, EW, Schuur, E.A.G.. Tundra Carbon Dynamics in response to experimental air warming and permafrost thaw. **XI. International Conference on Permafrost 2016.**

**Mauritz, M.,** Schuur, E.A.G., Bracho, R., Celis, G., Natali, SM, Hutchings, J, Salmon, VG, Webb, EW,. Ecosystem carbon dynamics in response to five winters of experimental soil warming and permafrost degradation. **American Geophysical Union, Fall Meeting 2014, BG31G-0140**

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### **Grants and Scholarships**

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USAPECS Polar Science Communication Workshop, Travel & Participation, 2017  
XI. International Conference on Permafrost, Travel Grant, 2016  
PolarTrec Funding for Arctic Scientist-Teacher Collaboration, 2016  
USPA young researcher travel award to AGU Fall Meeting (December 2014)  
NCAR ASP Summer Colloquium Carbon-Climate Connections in the Earth System (July/August 2013)  
SDSU IRA Travel Grant 2011, 2012  
SDSU Graduate Student Travel Fund 2010  
Martin-McLaren US-UK Exchange Scholarship (August 2006 – August 2007)

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### **Awards**

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1<sup>st</sup> place student oral presentations at California Native Plant Society Annual Conference, January 2012

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### **Teaching and Mentoring experience**

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Lesson plan: <https://www.polartrec.com/resources/lesson/data-interpretation-carbon-balance-in-an-arctic-warming-manipulation>

Mentoring:

PolarTrec funding to work with a schoolteacher in scientific research (2016)  
Training undergraduates and technicians in field and lab work (2011-2017)

Teaching:

Biostatistics, SDSU; Experimental Ecology, SDSU (2007 and 2011)

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### **Society Memberships**

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American Geophysical Union (AGU), United States Permafrost Association (USPA)

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### **Communications to General Audience**

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Sensitivity of Carbon Balance to Warming and Permafrost Thaw. **Mauritz, M.,** Schuur, E.A.G.. Witness the Arctic, 2015 (3)

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## Data Products

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Celis, G.; **Mauritz, Marguerite**; Natali, S.; Schuur, E. A.G. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating Research (CiPEHR): Half-hourly growing season, chamber-based, CO<sub>2</sub> flux data, 2009-2015., Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:481, <http://www.lter.uaf.edu/data/data-detail/id/481>

**Mauritz, M.**; Schuur, E. A.G.; Natali, S.; Taylor, M.. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating and Drying Research (DryPEHR): Growing season, chamber-based, CO<sub>2</sub> flux data, 2011-2015., Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:495, <http://www.lter.uaf.edu/data/data-detail/id/495>

**Mauritz, M.**; Schuur, E. A.G.; Natali, S.. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating and Drying Research (DryPEHR): Half-hourly growing season, chamber-based, CO<sub>2</sub> flux data, with dark daytime measurements, 2014, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:613, <http://www.lter.uaf.edu/data/data-detail/id/613>.

**Mauritz, M.**; Schuur, E. A.G.; Natali, S.. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating and Drying Research (DryPEHR): leaf C, N, delta-13-C, delta-N-15, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:628, <http://www.lter.uaf.edu/data/data-detail/id/628>.

**Mauritz, M.**; Schuur, E. A.G.; Natali, S.. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating and Drying Research (DryPEHR): Weekly dark CO<sub>2</sub> fluxes, 2014, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:614, <http://www.lter.uaf.edu/data/data-detail/id/614>.

**Mauritz, M.**; Schuur, E. A.G. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating Research (CiPEHR): Half-hourly growing season, chamber-based, CO<sub>2</sub> flux data, with dark daytime measurements, 2014, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:611, <http://www.lter.uaf.edu/data/data-detail/id/611>.

**Mauritz, M.**; Schuur, E. A.G. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating Research (CiPEHR): Weekly dark CO<sub>2</sub> fluxes, 2014, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:612, <http://www.lter.uaf.edu/data/data-detail/id/612>.

**Mauritz, M.**; Webb, E. E; Schuur, E. A.G. 2015. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating Research (CiPEHR): Winter ecosystem respiration measurements using soda lime, 2010-2015., Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:568, <http://www.lter.uaf.edu/data/data-detail/id/568>.

**Mauritz, M.;** Schuur, E. A.G.; Greyson-Gaito, C. J. 2016.Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating Research (CiPEHR): Phenology of Dominant Plant Species I - Bud burst and Senescence 2013-2015, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:570, <http://www.lter.uaf.edu/data/data-detail/id/570>

**Mauritz, M.;** Schuur, E. A.G.; Greyson-Gaito, C. J. 2016.Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating Research (CiPEHR): Phenology of Dominant Plant Species II - Berry Production 2013-2015., Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:580, <http://www.lter.uaf.edu/data/data-detail/id/580>

**Mauritz, M.;** Schuur, E. A.G.; Greyson-Gaito, C. J. 2016.Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating Research (CiPEHR): Phenology of Dominant Plant Species III - Flowering Date 2013-2015., Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:581, <http://www.lter.uaf.edu/data/data-detail/id/581>

**Mauritz, M.;** Schuur, Edward A.G. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating and Drying Research (DryPEHR): Phenology of Dominant Plant Species I - Bud burst and Senescence 2013-2015, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:571, <http://www.lter.uaf.edu/data/data-detail/id/571>

**Mauritz, M.;** Schuur, E. A.G. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating and Drying Research (DryPEHR): Phenology of Dominant Plant Species II - Berry Production 2013-2015, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:582, <http://www.lter.uaf.edu/data/data-detail/id/582>

**Mauritz, M.;** Schuur, E. A.G. 2016. Eight Mile Lake Research Watershed, Carbon in Permafrost Experimental Heating and Drying Research (DryPEHR): Phenology of Dominant Plant Species III - Flowering Date 2013-2015, Bonanza Creek LTER - University of Alaska Fairbanks. BNZ:583, <http://www.lter.uaf.edu/data/data-detail/id/583>